

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (Currently Amended) A regenerative braking system for a vehicle, comprising:

a displacement on demand (DOD) engine including cylinders;

a battery;

an electric machine that has motor and generator modes and that is selectively driven by a wheel of said vehicle; and

a controller that detects a braking condition of said vehicle, that deactivates at least one of said cylinders while maintaining at least another of said cylinders active in response to said braking condition, ~~and~~ that operates said electric machine in said generator mode during said braking condition to charge said battery, and that monitors a vehicle speed and activates all of said cylinders when said vehicle speed achieves a threshold.

2. (Cancelled)

3. (Previously Presented) The regenerative braking system of claim 1 wherein said controller detects termination of said braking condition and activates all of said cylinders in response to said termination.

4. (Cancelled)

5. (Original) The regenerative braking system of claim 1 wherein said controller selectively operates said electric machine in said motor mode to drive said wheel.

6. (Original) The regenerative braking system of claim 1 wherein said controller selectively deactivates all of said cylinders of said engine and operates said electric machine in said motor mode to drive said wheel.

7. (Cancelled)

8. (Currently) A method of charging and discharging a battery in a vehicle, comprising:

detecting a braking condition of said vehicle;

deactivating at least one cylinder of an engine in response to said braking condition while maintaining at least another cylinder of said engine active; and

driving an electric machine in a generator mode with a wheel of said vehicle to charge said battery; and

monitoring a vehicle speed and activating all of said cylinders when said vehicle speed achieves a threshold.

9. (Previously Presented) The method of claim 8 further comprising:

activating said electric machine in a drive mode to drive said wheel.

10. (Original) The method of claim 9 further comprising providing electrical current to said electrical machine from said battery.

11. (Cancelled)

12. (Previously Presented) The method of claim 8 further comprising:
detecting termination of said braking condition; and
activating said at least one cylinder in response to said termination.

13. (Currently Amended) A method of operating a vehicle having a regenerative braking system, comprising:

detecting a braking condition of said vehicle;
deactivating a cylinder of an engine in response to said braking condition while maintaining at least another cylinder of said engine active;
retarding motion of said vehicle by driving an electric machine in a generator mode with a wheel of said vehicle to generate electrical current;
~~detecting termination of said braking condition; and~~
monitoring a vehicle speed; and
activating all of said cylinders and relieving said retarding ~~in response to said termination~~ when said vehicle speed achieves a threshold.

14. (Original) The method of claim 13 further comprising charging a battery with said electrical current.

15. (Previously Presented) The method of claim 13 further comprising:
activating said electric machine in a drive mode to drive said wheel.

16. (Previously Presented) The method of claim 15 further comprising providing electrical current to said electric machine from a battery.